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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,626	10/20/2003	Hajime Saiki	Q78059	1784
23373	7590	08/20/2004	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			YAN, REN LUO	
			ART UNIT	PAPER NUMBER
			2854	

DATE MAILED: 08/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/687,626	Applicant(s) SAIKI ET AL.	
	Examiner Ren L Yan	Art Unit 2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10-20-2003</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-086673 in view of Sarashina et al(5,948,466). The '673 patent teaches the solder paste printing apparatus and method as claimed including a wiring substrate holder 7 for holding a polygonal wiring substrate 8 having a plurality of connection terminals 8a in a printed face, a plate-shaped mask 12 having a plurality of pattern openings 12a corresponding to the connection terminals 8a and disposed over the printed face of the wiring substrate 8, a squeegee 20 for moving along a top surface of the mask 12 while being held in contact with the top surface of the mask 12 to fill the pattern openings with a solder paste to form solder-printed layers on the wiring substrate, and detachment means 16a moving upwards for disengaging one side edge of the mask 12 from the printed face of the wiring substrate 8 in coordination with the movement of the squeegee 20. See the English abstract and Figs. 1-6 in the '673 patent for details. However, the '673 patent does not specify the size of the wiring substrate being printed on by the printing apparatus and method. It should be pointed out the wiring substrate being printed does not form any part of the printing apparatus as claimed and the printing apparatus of the '673 patent is certainly capable of printing on a wiring substrate having a length of 300 mm, which is less than 12 inches. However, in order for the rejection to be complete, the patent to Sarashina et al is introduced here to show the teaching of using a stencil having a length of 600 mm along its four sides for

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printing a wiring pattern on a circuit board. See column 1, lines 45-53 in Sarashina et al for example. In view of the teaching of Sarashina et al, it would have been obvious to those having ordinary skill in the art to provide the printing apparatus and method of the '673 patent with a stencil of sufficient size so as to enable printing a wiring pattern on a wiring substrate having a length of 300 mm when so desired.

Claims 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '673 patent in view of Sarashina et al as applied to claims 1-3 above, and further in view of Kinoshita(6,170,394). The '673 patent, as modified by Sarashina et al, teaches all that is claimed except that it does not discuss the squeegee moving speed, the squeegee printing pressure and the thickness of the printed solder layer. Kinoshita teaches in a solder paste printing apparatus the conventional use of a solder paste containing solid particles with a size of 20 to 44 microns so that the printed solder layer would be at least 20 microns in thickness. Kinoshita also teaches to move the squeegee at a speed of 10 mm/sec. See column 34, lines 14-23 in Kinoshita for example. It would have been obvious to those having ordinary skill in the art to provide the solder paste printing apparatus of the '673 patent, as modified by Sarashina et al with the solder paste as taught by Kinoshita and to move the squeegee at 10 mm/sec so as to achieve a printed solder layer on the wiring substrate with a desired thickness and quality. With respect to claims 7-9, the applied prior art may not specify the squeegee printing pressure be set at 7.5 kgf or more. However, it should be apparent to those skilled in the art that the printing pressure that the squeegee applied to the stencil during printing is determined by many factors such as the viscosity of the solder paste used, the size of the pattern openings in the stencil, the inclination angle of the squeegee against the stencil surface, the hardness of the squeegee tip, etc. in order to

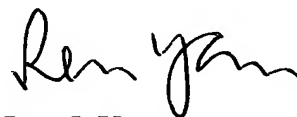
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achieve a desired printing quality. In the applied prior art, once the value of these factors are known, one of ordinary skill in the art would be able to set the squeegee printing pressure to an optimum value through routine experiment in order to achieve a desired printing outcome. Such routine experiment by those skilled in the art would have been most obvious.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ren L Yan whose telephone number is 571-272-2173. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on 571-272-2168. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ren L Yan  
Primary Examiner  
Art Unit 2854

Ren Yan  
Aug. 19, 2004